2023 Bi H1 Q5

Section: DNA and the Genome

Topic: Evolution

Question Summary

The question asks which statement correctly describes natural selection. You must choose the option that reflects how DNA sequences change in a population over time.

Worked Solution

Natural selection acts non-randomly:
• Individuals with advantageous alleles are more likely to survive and reproduce.
• Their alleles are passed on, so these beneficial DNA sequences increase in frequency within the population.
• Harmful alleles tend to become less common.

■ Therefore, the correct description is a non-random increase in frequency of DNA sequences that increase survival.

Final Answer

■ Option C — Non-random increase in frequency of DNA sequences that increase survival

Revision Tips

• Variation in populations arises by mutation.
• Natural selection is non-random: advantageous traits become more common.
• Genetic drift is random, affecting small populations.
• Remember:
– Mutation → Variation → Selection → Evolution
• The word “non-random” is key to natural selection questions.